

Short Communication

Seed Germination in *Tephrosia falciformis*

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In recent years, several plants of Indian Thar Desert have been identified as a source of herbal drugs and have attracted attention of cultivators for commercial cultivation. One such important plant is *Tephrosia falciformis* locally known as *rati byani*, which is endemic to western Rajasthan and Sindh in Pakistan (Bhandari, 1990). It is a perennial, much branched shrub with pods valued for falciformin content (Khan *et al.*, 1986). The whole plant as well as roots has many other uses, viz., tonic, stimulant, laxative, treatment of worms, syphilis, chronic bronchitis, bladder trouble and intestinal worms. The present study was undertaken to find out germination requirements of *T. falciformis*.

The pods of *T. falciformis* were collected from natural population at Mokal (40 km from Jaisalmer to Ramgarh) in July 2000. The seeds were separated from pods by hand and 25 seeds were used for each of the eight treatments: (i) soaking in cold water for 24 hours, (ii) soaking in cold water for 12 hours, (iii) treatment with Conc. H₂SO₄ for 10 minutes, (iv) treatment with Conc. H₂SO₄ for 20 minutes, (v) treatment with Conc. H₂SO₄ for 30 minutes, (vi) mechanical scarification of seeds (partial removal of seed coat), (vii) mechanical scarification of seeds followed by soaking in cold water for 6 hours, and (viii) control (untreated, normal seeds).

Each treatment was replicated thrice and the entire set of petridishes was kept at room temperature (31±1°C). Distilled water was regularly added to keep filter paper moist. The percentage germination, Mean Daily Germination (MDG) and Germination Value (GV) were computed by using standard procedure (ISTA, 1985). Radicle emergence was the criteria of seed germination and the germination count was done for five consecutive days.

Seed treatments significantly influenced seed germination (Table 1). The mean germination ranged from 1.7-25.0 and lowest value was recorded in seeds soaked in cold water treated for 12 hours and the highest in mechanically scarified (partial removal of seed coat) seeds followed by seeds soaked in cold water for 6 hours. Similar trend was observed in MDG and GV parameters also.

Thus, highest germination can be obtained by partial removal of seed coat followed by seeds soaked in cold water for 6 hours. Among the generalized causes of seed coat imposed dormancy (Bewly and Black, 1982), impermeability of the seed coat seems applicable to *T. falciformis*, as its seed coat remains impermeable even after 24 hours of soaking in cold water. Existence of germination inhibitors in seed coats, as reported in many plants including crops,

Table 1. Mean germination, percentage germination, MDG and GV of *T. falciformis* seeds under various seed treatments

Treatments	Mean germination	Percentage germination	MDG	GV
Soaking in cold water for 24 hours	3.3	13.3	1.4	4.2
Soaking in cold water for 12 hours	1.7	6.7	0.2	0.2
Treatment with Conc. H ₂ SO ₄ for 10 minutes	19.0	76.0	3.8	72.2
Treatment with Conc. H ₂ SO ₄ for 20 minutes	22.7	90.7	4.8	115.2
Treatment with Conc. H ₂ SO ₄ for 30 minutes	23.3	93.3	4.8	115.2
Mechanical scarification of seeds (partial removal of seed coat)	23.7	94.7	4.9	117.6
Mechanical scarification of seeds followed by soaking in cold water for 6 hours	25.0	100.0	5.0	125.0
Control (Untreated, normal seeds)	3.7	14.7	0.2	0.2
SEm±	0.18	—	—	—
CD (P=0.05)	0.56	—	—	—

trees and plants (Bewly and Black, 1982; Ross, 1984; Manga and Sen, 1995; Mertia and Kunhamu, 2000), may also be another factor but this needs to be further investigated.

References

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